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Sea-level-rise disaster in Micronesia: Sentinel event for climate change?

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Abstract:

OBJECTIVES: To describe the impact of an acute-onset sea-level-rise disaster in 2 coral atoll populations and to generate hypotheses for further investigation of the association between climate change and public health. METHODS: Households of Lukunoch and Oneop islands, Micronesia, were assessed for demographics, asset damage, food availability, water quantity and quality, hygiene and sanitation, and health status. Every fourth household on Lukunoch was randomly selected (n Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 40). All Oneop households were surveyed (n Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 72). Heads of each household were interviewed in the local language using a standard survey tool. Prevalence data were analyzed, and 95% confidence intervals were calculated. RESULTS: A total of 112 total households were respondents representing 974 inhabitants. On Lukunoch, roughly half of all households surveyed reported at least a partial loss of their primary dietary staple and source of calories (taro and breadfruit). Six (15%) of 40 Lukunoch households surveyed (95% CI, 6%-30%) reported a complete loss of taro and four (10%) of the 40 households (95% CI, 3%-24%) reported a complete loss of breadfruit. On Oneop, nearly all households reported at least a partial loss of these same food staples. Twenty four (31%) of all 76 Oneop households reported a complete loss of taro and another 24 (31%) households reported a complete loss of breadfruit. One third of all households surveyed reported a complete loss. On Lukunoch 11 (28%) of 40 households, (95% CI, 15%-43%) reported damage from salination, but none were damaged to the point of a complete loss. Forty-nine (64%) of 76 Oneop households reported salination and five (6%) reported complete loss of their well. CONCLUSION: On March 5, 2007, an acute-onset, sea level rise event resulting in coastal erosion, shoreline inundation, and saltwater intrusion occurred in two coral atoll islands of Micronesia. The findings of this study suggest that highly vulnerable populations of both islands experienced disastrous losses involving crop productivity and freshwater sources. These findings reveal the need for effective public health research and sustainable interventions that will monitor and shape the health of small island populations predicted to be at high risk for adverse health effects due to climate change.

Source: Ask your librarian to help locate this item.

Resource Description

Communication: M

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

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Communication Audience: M

audience to whom the resource is directed

Public

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

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Exposure: M

weather or climate related pathway by which climate change affects health

Food/Water Quality, Food/Water Security, Food/Water Security, Sea Level Rise

Food/Water Security: Agricultural Productivity, Food Access/Distribution

Geographic Feature: M

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location: M

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Region

Other Asian Region: Micronesia

Health Impact: M

specification of health effect or disease related to climate change exposure

Infectious Disease, Injury

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: General Foodborne/Waterborne Disease

Intervention: M

strategy to prepare for or reduce the impact of climate change on health

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Mitigation/Adaptation: **№**

mitigation or adaptation strategy is a focus of resource

Adaptation

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Population of Concern: A focus of content

Population of Concern: **☑**

populations at particular risk or vulnerability to climate change impacts

Children, Elderly, Low Socioeconomic Status, Pregnant Women

Resource Type: **™**

format or standard characteristic of resource

Research Article

Timescale: **™**

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ™

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content